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EXAMINER	
KASRAIAN, ALLAHYAR	
ART UNIT	PAPER NUMBER
2617	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/614,738	MITRA ET AL.	
	Examiner	Art Unit	
	ALLAHYAR KASRAIAN	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 December 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9,13,16 and 21-24* is/are rejected.

7)☒ Claim(s) *10-12,14,15 and 17-20* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Remarks

1. The present Office Action is in response to Applicant's amendment filed on 12/16/2008. **Claims 1-24** are now pending in the present application. **This Action is made FINAL**.

Response to Arguments

2. Applicant's arguments filed 12/16/2008 have been fully considered but they are not persuasive.

On the second paragraph of page 10 of the Applicant's arguments/remarks regarding claims 1, 21 and 22, Applicant Argues, "Applicants note that Devi does *not* disclose or suggest *selecting one of said predetermined paths between a source node and a destination node based on a current load measurement wherein said current load measurement is measured at a source node…* Neither Devi nor Aukia disclose or suggest *selecting a predetermined path (between a source node and a destination node) based on a current load measurement measured at a source node.*" Examiner respectfully disagrees since Devi clearly discloses *selecting one of said predetermined paths between a source node and a destination node based on a current load measurement* (see par. 0018-0019 and 047-0049). Aukia discloses the well-known technique of measuring a current load at router (or source) which is responsible to forward and/or send packets to the destination. Therefore, Devi in combination with Aukia disclose the limitation.

Applincat further argues, “Applicants also note that, as the Examiner acknowledges, Aukia discloses a technique similar to OSPF and teaches that each node in the network determines, in a distributed manner, the path for the source-destination pair that traverses the node. (See, Abstract and Summary of the Invention.)” In response to applicant's argument that the references fail to show certain features of applicant’s invention, it is noted that the features upon which applicant relies (i.e., OSPF) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

On the first paragraph of page 11 of the Applicant’s arguments/remarks regarding claims 1, 21 and 22, Applicant Argues, “There is no suggestion in Devi or in Aukia, alone or in combination, to select a predetermined path (between a source node and a destination node) from a plurality of predetermined paths based on a current load and measurement measured at source node.” Examiner respectfully disagrees with Applicant since Devi as modified by Aukia clearly discloses the limitation (see par. 0018-0019 and 047-0049 of Devi and col. 10 lines 24-33 of Aukia).

In response to applicant's argument, on the second paragraph of page 11 of the Applicant’s arguments/remarks regarding claims 1, 21 and 22, that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one

of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the path selection between predetermined path as taught by Devi is combined with teaching of Aukia's which discloses a current load measurement at the source node see par. 0018-0019 and 047-0049 of Devi and col. 10 lines 24-33 of Aukia).

Therefore, claims 1, 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Devi in view of Aukia.

From the last paragraph of page 11 to the third paragraph of page 12 of the Applicant's arguments/remarks regarding claim 13, Applicant argues, "Contrary to the Examiner's assertion, Szviatovszki does not disclose or suggest length information. Also, contrary to the Examiner's assertion, Applicants could find no disclosure or suggestion of *length information* in Shabtay. Applicants also find no disclosure or suggestion that the length information is provided by the OSPF protocol, or that it is combined by bandwidth availability information of the links to utilize a rerouting mechanism." In response to Applicant's argument, Examiner considers the length information as the length of a path as being smaller or smallest. Although there is no disclosure in the claim indicating as *length information* either, Applicant should clarify what the length information represents on the claim and should also explain the differences between the Shortest Path and the length information.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the Examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the Examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. **Claims 1-4, 21 and 22** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Devi (US patent Application Pub. # 2003/0147400 A1)** in view of **Aukia et al. (US Patent # 6594268 B1)** (hereafter Aukia).

Consider **claims 1, 21 and 22**, Devi discloses an apparatus for traffic engineering for in a network-based communication system, the apparatus comprising:

a memory (FIG. 2 for memory 206, and lines 1-3 of par. 0021);

and at least one processor, coupled to the memory (FIG. 2 processor 204 and lines 1-3 of par. 0021);

Devi discloses the apparatus operative, a method, and a computer-readable medium including computer codes (FIG. 2 code 208 and par. 0023 and 0024) to perform the method, comprising:

to determine, in response to a request, whether any path of a plurality of predetermined paths between a source node and a destination node meets at least one requirement corresponding to the request, wherein the plurality of predetermined paths are determined by substantially maximizing carried demand on a network using at least traffic demand estimates, and network topology information, and by performing routing for the substantially maximized carried demand (FIG.1 for nodes 102, links 104 and server 200 and par. 0014; FIG. 2 for Demands 212 and Topology Information 214 lines 10-13 of par. 0026 for demands and request; lines 2-3 of par. 0004, 0005, 0028 and 0029 for traffic demand estimation and network topology); and

selecting one of said predetermined paths based on current load measurement, if a given path meeting the at least one requirement is found, to attempt to create a connection utilizing the given path (abstract, par. 0005, 0018-0019, 0022; col. 0046-0049 for optimum path selection specifically).

However, Devi fails to explicitly disclose the current load measurement is measured at a source node; and the maximizing carried demand on a network using at least traffic demand estimates and network topology information.

In the same field of endeavor, Aukia discloses the current load measurement is measured at a source node; and the maximizing carried demand on a network using at least traffic demand estimates and network topology information (col. 21 lines 23-51, col. 10 lines 24-33).

Therefore, it would have been obvious to a person of ordinary skills in the art at the time the invention was made to incorporate the well-known technique of measuring a current load at router (or source) which is responsible to forward and/or send packets to the destination as taught by Aukia to the optimization method based on demand estimate and network topology information as disclosed by Devi for purpose of maximizing revenue based on current and past history of data traffic of a router.

Consider **claim 2**, Devi as modified by Aukia disclose the claimed invention **as applied to claim 1 above**, in addition Devi discloses the carried demand comprises a total amount of demand that can be carried in the network (lines 1-2 of par. 0026).

Consider **claim 3**, Devi as modified by Aukia disclose the claimed invention **as applied to claim 1 above**, in addition Devi discloses the at least one requirement comprises a destination address and a bandwidth (FIG. 2 for destination 218 of

demands 212, lines 5-6 of par. 0026; link information 224 including assigned bandwidth and available bandwidth, lines 10-15 of par. 0027 and lines 1-3 of col. 0041).

Consider **claim 4 as applied to claim 1 above**, Aukia determining the traffic demand estimates based at least in part on previously measured traffic demands or historical traffic demands (FIG. 10 step 1003 and lines 46-51 of col. 21); and

determining network topology by using information from link-state routing (FIG. 5 and lines 48-52 of col. 13).

Consider **claim 6 as applied to claim 1 above**, Aukia discloses the step of: refusing the connection request if there are no paths in the plurality of predetermined paths meeting the at least one requirement or when the connection utilizing the given path is unavailable (lines 20-22 of col. 22).

Consider **claim 24**, Devi as modified by Aukia disclose the claimed invention **as applied to claim 1 above**, in addition Devi discloses the step of dynamically determining a path between the source node and the destination node if none of said plurality of predetermined paths meet the at least one requirement, wherein said dynamic path is determined at the source node (par. 0024 for updating path assignment).

5. **Claims 5, 7-9, 13 and 16** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Devi (US patent Application Pub. # 2003/0147400 A1)** in view of **Aukia et al. (US Patent # 6594268 B1)** (hereafter Aukia) further in view of **Szviatovszki et al. (US Patent # 6956821 B2)** (hereafter Szviatovszki).

Consider **claim 5** Devi as modified by Aukia disclose the claimed invention **as applied to claim 1 above**, in addition Devi discloses substantially maximizing the carried demand using at least the traffic demand estimates and the network topology (lines 2-4 of par. 0004);

performing routing for the substantially maximized carried demand, thereby determining a plurality of resultant paths(lines 7-9 of par. 0005);

However, Devi as modified by Aukia fail to disclose storing the plurality of resultant paths as the predetermined paths.

In the same field of endeavor, Szviatovszki discloses storing the plurality of resultant paths as the predetermined paths (FIG. 2 block 20, lines 23-28 of col. 4).

Therefore, it would have been obvious to a person of ordinary skills in the art at the time the invention was made to incorporate the storing of calculated paths to a database as taught by Szviatovszki to the path calculation method as disclosed by Devi as modified by Aukia for purpose of saving the calculated paths as future reference. The proper motivation is to use the saved calculated paths from the database of a router for future estimation of the paths in a network.

Consider **claim 7** Devi as modified by Aukia disclose the claimed invention **as applied to claim 1 above**, in addition Devi discloses the network topology comprises nodes interconnected through edges (FIG. 1 for nodes 102 and edges 104 and par. 0014);

However, Devi as modified by Aukia fail to disclose the request is made by a source node; the method further comprises the steps of: determining whether a designed load between the source node and a destination node is greater than a measured load between the source and destination nodes; when the designed load between the source node and the destination node is greater than a measured load between the source node and the destination node, pruning edges that do not have a first available bandwidth from the network, thereby creating a first pruned network; and when the designed load between the source and a destination is not greater than a measured load between the source and destination, pruning edges that do not have a second available bandwidth from the network, thereby creating a first pruned network.

In the same field of endeavor, Szviatovszki discloses the request is made by a source node (FIGS. 1 and 2, lines 11-14 of col. 5);

the method further comprises the steps of:

determining whether a designed load between the source node and a destination node is greater than a measured load between the source and destination nodes (lines 50-58 of col. 1 and lines 59-67 of col. 9 for Dijkstra CSPF algorithm for minimizing cost of the path);

when the designed load between the source node and the destination node is greater than a measured load between the source node and the destination node, pruning edges that do not have a first available bandwidth from the network, thereby creating a first pruned network (lines 59-67 of col. 9, “For this LSP path calculation, the traffic engineering path selection module 72 marks all links in its database 74 as "invalid" having an unreserved bandwidth at the priority level of the LSP setup priority that is less than the LSP's bandwidth requirement. This can be determined as a simple inequality comparison $B_{us} < B_{LPS}$. In other words, links are eliminated or "pruned" that do not have enough unreserved bandwidth to support the LSP with the given priority s.”); and

when the designed load between the source and a destination is not greater than a measured load between the source and destination, pruning edges that do not have a second available bandwidth from the network, thereby creating a first pruned network (lines 59-67 of col. 9 and lines 29-38 of col. 10, “the maximum reservable bandwidth on the link B_{max}… an unreserved bandwidth vector $B_u = (B_{u0}, B_{u1}, \ldots, B_{u7})$ containing the actual unreserved bandwidth values”).

Therefore, it would have been obvious to a person of ordinary skills in the art at the time the invention was made to incorporate load balancing between source and destination node with consideration of available bandwidth as taught by Szviatovszki to the network management method as disclosed by Devi as modified By Aukia for purpose of choosing a path in order to balance the network load. The proper motivation

is to select a path between nodes with consideration load balancing and available bandwidths.

Consider **claim 8 as applied to claim 7 above**, Szviatovszki further discloses the first bandwidth is zero and the second bandwidth is a predetermined trunk reservation (lines 49-56 of col. 10 and lines 1-5 of col. 11).

Consider **claim 9 as applied to claim 7 above**, Szviatovszki further discloses the steps of determining whether a designed load, pruning edges that do not have a first available bandwidth from the network, and pruning edges that do not have a second available bandwidth from the network are performed prior to the step of determining, in response to a request, whether any path of a plurality of paths meets at least one requirement; and the method further comprises performing, if a given path meeting the at least one requirement is not found, the following steps: pruning edges that do not have a first available bandwidth from the first pruned network to create a second pruned network; computing shortest path from the source node to the destination node in the second pruned network; and attempting to create a connection on the shortest path (lines 17-24 of col. 13).

Consider **claim 13**, Devi as modified by Aukia as modified by Szviatovszki disclose the claimed invention **as applied to claim 5 above**, in addition Devi discloses the step of performing routing further comprises the step of performing routing for the

substantially maximized carried demand, subject to a plurality of second constraints (FIG.3 with consideration of substantially maximized carried demand as optimization of network paths between nodes, par. 0031, 0032 and par. 0025, the second constraints as service classes or capacity link).

Consider **claim 16 as applied to claim 5 above**, Szviatovszki further discloses the step of performing routing further comprises the step of minimizing a total bandwidth-length product subject to a plurality of constraints including path-assignment constraints (lines 26-29, 33-39 and 46-50 of col. 9).

6. **Claim 23** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Szviatovszki et al. (US Patent # 6956821 B2)** in view of **Shabtay et al. (US Patent # 6895441 B1)** (hereafter Shabtay).

Consider **claim 23**, Szviatovszki discloses a method for traffic engineering for a network-based communication system comprising a network having nodes interconnected through edges, and wherein a source node requests a connection to a destination node, the method comprising the steps of (FIG. 1):

determining a first shortest path between the source node and destination node (col. 9 lines 33-39, col. 13 lines 10-30);

pruning edges not having a first available bandwidth from the network, thereby creating a first pruned network (col. 13 lines 10-30)

computing a second shortest path between the source node and the destination node using the first pruned network (Table 1 for 2nd method, and lines 14-26 of col. 13);

if a length of the second shortest path is equivalent to a length of the first shortest path, attempting to create a connection on the second shortest path (col. 12 lines 37-43).

However, Szviatovszki fails to explicitly discloses if a length of the second shortest path is not equivalent to a length of the first shortest path, performing the following steps: pruning edges not having a second available bandwidth from the first pruned network, thereby creating a second pruned network; computing a third shortest path between the source node and destination node using the second pruned network; and attempting to create a connection on the third shortest path.

In the same field of endeavor, Shabtay discloses if a length of the second shortest path is not equivalent to a length of the first shortest path, performing the following steps (this condition could be interpreted as unsuccessful first search indicated in lines 18-19 of col. 5; lines 14-21 of col. 4 and lines 12-22 of col. 5, for the first path search with the required bandwidth; lines 35-42 and 61-67 of col. 4):

pruning edges not having a second available bandwidth from the first pruned network, thereby creating a second pruned network (lines 19-22 of col. 5);

computing a third shortest path between the source node and destination node using the second pruned network (lines 19-22 of col. 5); and

attempting to create a connection on the third shortest path (lines 19-22 of col. 5 for the second search, the path chosen from protected paths and unprotected path are

considered as the first pruned network and combined bandwidth is considered as the second available bandwidth).

Therefore, it would have been obvious to a person of ordinary skills in the art at the time the invention was made to incorporate second bandwidth to prune the network as taught by Shabtay to one the path metrics disclosed by Szviatovszki for purpose of selecting best available links between different nodes in a network. The proper motivation is to choose the best available links between nodes in a network.

Allowable Subject Matter

7. **Claims 10-12, 14, 15, and 17-20** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any response to this Office Action should be **faxed to** (571) 273-8300 **or mailed to**:

Commissioner for Patents
P.O. Box 1450
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Hand-delivered responses should be brought to

Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

10. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Allahyar Kasraian whose telephone number is (571) 270-1772. The Examiner can normally be reached on Monday-Thursday from 8:00 a.m. to 5:00 p.m.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Rafael Pérez-Gutiérrez can be reached on (571) 272-7915. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status

information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free) or 571-272-4100.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist/customer service whose telephone number is (571) 272-2600.

/Allahyar Kasraian/
Examiner, Art Unit 2617

A.K./ak

/Rafael Pérez-Gutiérrez/
Supervisory Patent Examiner, Art Unit 2617

March 1, 2009